



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,111	12/03/2003	Weiqi Liu	C83.12-0001	4408
27367	7590	12/29/2005	EXAMINER	
WESTMAN CHAMPLIN & KELLY, P.A. SUITE 1400 - INTERNATIONAL CENTRE 900 SECOND AVENUE SOUTH MINNEAPOLIS, MN 55402-3319			CHERRY, EUNCHA P	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 12/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/727,111	Applicant(s) LIU, WEIQI	
	Examiner EUNCHA P. CHERRY	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-25, 27-29 and 31 is/are rejected.
- 7) ☒ Claim(s) 26 and 30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of species 5 in the reply filed on 9/28/05 is acknowledged. However, applicant omits the ground (s) of traversal in the response.

The requirement is still deemed proper and is therefore made FINAL.

2. Applicant canceled non-elected claims 1-19 in the response filed on 9/28/05.

Claim Objections

3. Claims 26 and 30 are objected to because of the following informalities: the parameter N is not defined any meaningful way. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2872

5. Claims 21-25, 27-29 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deter et al (US 6,137,461) in view of Hashizume et al (US 5,865,521).

Deter et al discloses a light projection television using a scanning area light source, comprising an area light source unit, an image combination unit and an image unit, wherein the area light source unit is used for projecting three light beams of R, G and B (Fig. 1, 10, 20, 30) onto a rotating polygon mirror (41, 42) rotating at high speed, rotating polygon mirror is used for horizontally scanning the light beam to generate a horizontal line, vertically scanning the light beam line by line, repeating above 2-D scanning so as to transforming three light beams into an uniform scanning area having no interference and refreshing with a predetermined field frequency (see the rays), and illuminating three spatial light modulators of R, G and B (14, 24, 34); the image combination unit is used for combining three monochromatic images into a color image (38, 40); the imaging unit is used for projecting the color image on a screen (43) via an objective lens (45) by taking the color image as an object of the objective lens. The area light source unit comprises a red, green and blue light emitters (10, 20 and 30), a rotating polygon mirror (41), a plane mirror (42). The

Art Unit: 2872

imaging unit comprises a projection objective (45) and a screen (43).

However, the image combination unit of Deter et al is not used for combining three monochromatic images into a color image, wherein three spatial light modulators illuminated by three monochromatic light beams of R, G and B form three channel monochromatic images, which are combined in a combination prism to generate a color image. Hashizume et al discloses the image combination unit that is used for combining three monochromatic images into a color image, wherein three spatial light modulators illuminated by three monochromatic light beams of R, G and B form three channel monochromatic images, which are combined in a combination prism to generate a color image (see Fig. 9, 910 with 925R, 925G and 925B). It would have been obvious to one of ordinary skill in the art to use the three spatial light modulators with the image combination unit as taught by Hashizume et al for the purposed of increasing the brightness of a projected image (as supported in column 1, lines 53-64).

In combination, the rotating polygon mirror is arranged properly in the path constituted of the green channel spatial light modulator, the combination prism and the projection objective, and can rotate about its own rotation axis, three

Art Unit: 2872

light beams emitted from the red light emitter, the green light emitter and the blue light emitter irradiate onto the same plane mirror (S) of the rotating polygon mirror, and then reflected back from the surface, the mirror is arranged in the path of red light beam from the red light emitter, the optical axis of beam reflected from the mirror points to the center of the red channel 2-D spatial light modulator, the aperture area of beam reflected from the mirror occupies the operating area of the red channel 2-D spatial light modulator, the mirror is arranged in reflecting blue light path of the blue light emitter, the optical axis of the beam of the blue channel 2-D spatial light modulator and the aperture area of beam reflected from the plane mirror occupies the operating area of the blue channel 2-D spatial light modulator, a green beam emitted directly from the plane mirror (S) of the rotating polygon mirror to the green channel 2-D spatial light modulator and aperture area of the green beam reflected from the plane mirror occupies operating area of the green channel 2-D spatial light modulator, three operating areas of the red channel 2-D spatial light modulator, the green channel 2-D spatial light modulator and the blue channel 2-D spatial light modulator are parallel to the corresponding operating areas of the combination prism (see the relation between 910 and 925R, 925G and 925B).

Allowable Subject Matter

6. Claims 26 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: claims are allowable at least for the reason that the prior art does not teach or reasonably suggest the mirrors that satisfying the conditional equation as set forth in the claimed combination.

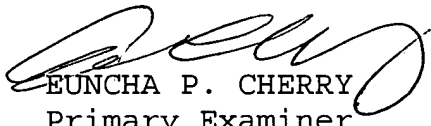
Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to EUNCHA P. CHERRY whose telephone number is 571-272-2310. The examiner can normally be reached on M-F 6:30-4:00, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DREW DUNN can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2872

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


EUNCHA P. CHERRY
Primary Examiner
Art Unit 2872

12/27/05